

Working Together to Protect the Health of the American Food Supply: An Analytical Method to Quantitate Part-Per-Billion Levels of Carbamate Pesticides in Eggs

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Keywords: carbamates, parts per billion (ppb), liquid chromatography, eggs, healthy diet

A healthy diet begins with a safe food supply. Federal and State laboratories throughout the country strive to protect our food from chemical contamination. A wide range of foods are monitored to enforce the EPA laws that are in place to limit the pesticide residues found in the food that makes it to our tables. N-methyl carbamate insecticides (carbamates) comprise an important class of pesticides used in agriculture. The carbamate, carbaryl, is routinely used on hens, by dusting or dipping, for the purpose of treating pesky mites. Studies have shown that hens treated for mites with carbaryl will produce eggs with measurable pesticide residues for a number of weeks.

Americans consume a lot of eggs. Each person in the US eats about 250 eggs a year, and there are an estimated 280 million egg-laying hens in the US producing about 80 billion table eggs a year. Because eggs are a significant component of the American diet, this food source is monitored by State and Federal labs for pesticide contamination. An important component of the effort to ensure a healthy food supply is the development of analytical methods to detect pesticides in food at parts-per-billion (ppb) levels. A 2003 EPA collaborative study resulted in the development of an analytical method to quantitate very low levels of carbamate residues in fresh fruits and vegetables. A second EPA collaborative project recently expanded this capability to the determination of carbamates in eggs. Together, the Food and Drug Administration (FDA) and the EPA have developed a liquid chromatographic method to quantitate ppb levels of carbamate residues in eggs to help further ensure the health and safety of an important component of our food supply. The monitoring data acquired with this new method can also be used to determine cumulative dietary exposure to pesticides for our most vulnerable population, our children.

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